

## CLAIMS

WE CLAIM:

- 5 1. A method of printing using a high data rate printer architecture, comprising the steps of:
- receiving compressed page data comprising both contone data and foreground bi-level data;
- decompressing said contone data;
- 10 decompressing said foreground bi-level data;
- halftoning said contone data to bi-level color data;
- compositing said foreground bi-level data over said bi-level color data to create composited bi-level color image data; and
- printing said composited bi-level color image data.
- 15 2. A method of printing according to claim 1, further comprising the steps of:
- loading said compressed page data into a compressed page buffer;
- loading said contone data into a contone color buffer;
- loading said foreground bi-level data into a bi-level K buffer; and
- 20 loading said composited bi-level color image data into a bi-level color buffer.
3. A method of printing according to claim 1, further comprising the step of transferring said composited bi-level color image data to a Memjet printhead.
- 25 4. A method of printing according to claim 3, wherein said step of printing said composited bi-level color image data employs a printhead interface unit controlling said Memjet printhead.
5. A method of printing according to claim 3, wherein said step of transferring said
- 30 composited bi-level color image data to said Memjet printhead transfers said image data at a constant rate.

6. A method of printing according to claim 1, wherein said steps of decompressing said contone data and decompressing said foreground bi-level data occur in real time with said step of printing said composited bi-level color image data.
- 5 7. A method of printing according to claim 3, wherein said step of transferring said composited bi-level color image data to said Memjet printhead transfers said image data at a rate in excess of 50 Mbytes per second.
8. A method of printing according to claim 1, wherein said foreground bi-level data is  
10 foreground bi-level black data.
9. A method of printing according to claim 1, wherein said bi-level color data is bi-level CMYK data.
- 15 10. A method of printing according to claim 2, wherein said contone color buffer is a contone CMYK buffer.
11. An integrated circuit comprising:  
a processor bus;  
20 purpose-specific functional units each operatively connected to said processor bus, said functional units comprising:  
a JPEG decoder;  
a bi-level decoder;  
a halftoner; and  
25 a program ROM; and  
a general-purpose processor operatively connected to said processor bus for controlling said functional units, wherein said processor is operative to run software that coordinates said functional units to receive, expand and print pages.
- 30 12. An integrated circuit according to claim 11, wherein said purpose-specific functional units further comprise an interface to a pagewidth inkjet printhead which is able to produce in excess of 50 Mbytes/second of bi-level print data.